

## Adaptive Management (AM) Pilots

### Outline

- I. Introduction
- II. Site Level Pilots – Establishing an AM Site Management Plan
- III. Project (or Remedy) Level Pilots– Establishing and Executing an AM Project Management Plan
- IV. Pilot Criteria
- V. Draft Tools to Pilot
- VI. Metrics for Evaluating Pilot Performance
- VII. AM Application and Considerations at Sites or Projects that Do Not Meet the PRP Pilot Criteria

### I. Introduction

Building on the working definition of AM provided in OLEM 9200.3-120, Superfund Task Force Recommendation #3: Broaden the Use of Adaptive Management, the AM pilots are an opportunity to move the Superfund’s use of AM largely from the *conceptual stage* to the *implementation stage*. The AM pilots will develop and/or implement an AM framework at selected Superfund sites being addressed under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended, 42 U.S.C. § 9601, et seq.

AM task force pilots will be pursued at both the site and project level in two key areas:

Establishing an AM Site/Project Management Plan; and AM Plan Execution.

Establish an AM Site/Project Management Plan: Focus on developing and refining a structured adaptive decision-making process and include the key elements of adaptive management, specifically:

- Identify Site/Project Objectives
- Model(s) the site being managed
- Identify potential actions (e.g., investigation, treatability study, response actions)
- Monitor and evaluate outcomes
- Incorporate learning into future decisions

Critical to AM planning is stakeholder input to support site or project strategies as well as setting up a transparent process and timing of adaptive management decision points (AMDPs) throughout the site or project execution phase. A failure to adequately plan any of these could adversely affect successful AM execution.

*Outcome:* AM Site/Project Management Plan

*Pilot applications:* Site level and project level

AM Plan Execution: AM execution, or implementation, describes how the AM site/project management plan is used, specifically how it promotes:

- **Adaptive Decision Making:** Critical to AMDPs is documenting how and why management decisions are made (including rationale for both sections actions and actions not selected for implementation); and

- **Continual learning:** How selected actions will be monitored, assessed, and most importantly how outcomes of these actions will be incorporated into future AMDPs.

*Outcomes:* Project Execution Plan for FY 2019

*Pilot applications:* Project level

**Pilot Duration:** Per the implementation plan outlined in OLEM 9200.3-120, the pilots are intended for a duration of one year, formally starting after pilots have been selected. EPA recognizes that completing pilots in one year is an aggressive target. To ensure adequate time to plan, execute, and evaluate an AM framework for each selected pilot, pilot progress will be tracked by the AM Task Force Workgroup in FY 2019. Based on each pilot's progress, there may be decisions to continue pilot evaluation after the Superfund Task Force efforts have been completed.

**Pilot Resource Support:** Headquarters (Office of Superfund Remedial and Technology Innovation (OSRTI) or Office of Land and Emergency Management (OLEM)) will offer extramural AM contractor support for development of site and project specific documents, facilitate meetings, etc. at selected pilots. In addition, based on the pilots that are selected, OSRTI may explore prioritizing pipeline or remedial action funds to support project execution efforts. (See sections II and III for more details on project execution.)

## II. Site Level Pilots – Establishing an AM Site Management Plan

Due to the anticipated size and complexity of the targeted sites, pilots will be selected with the purpose of developing an AM Site Management Plan (AM-SMP) for each pilot.

**Proposed Number of Pilots:** *1 to 2 site-level pilots.* EPA, as the lead agency for this effort, is committed to piloting at least one EPA-lead site. A Potentially Responsible Party (PRP) or Federal Facility (FF)-lead site, assuming all pilot criteria identified in Section IV have been met, may also be included.

Piloting and evaluating the development of an AM-SMP will:

- Explore the benefits of early, systematic planning and documentation after sites have been listed on the National Priorities List (NPL);
- For sites at which EPA (or another federal lead agency) is considering selecting an early or interim response action decision(s) in the site strategy (*e.g.*, provide prompt human health or ecological risk reduction or source control), ensure clear expectations for data and feasibility study needs to support these decisions;
- Clearly state how AMDP management decisions (*i.e.*, proposed actions) will be documented to ensure that appropriate data quality objectives are developed to inform such decisions;
- Identify challenges with AM implementation including those unique to EPA-lead, PRP-lead, or other Federal Agency-lead sites;
- Define key site characteristics that would help identify good candidates for applying AM; and
- Be used as an example for guidance and training development

Measurement of Pilot Success: An AM-SMP that reflects coordination with numerous stakeholders and incorporation of their input to the Plan. After a year, there may be decisions to continue pilot evaluation.

### **III. Project (or Remedy) Level Pilots– Establishing and Executing an AM Project Management Plan**

Pilots will be selected with the purpose of developing and executing a AM Project Management Plan (AM-PMP).

Projects that are candidates for piloting an AMP-PMP are:

- early in the feasibility study process, where EPA (or another federal lead agency) plans to incorporate AM into a CERCLA and National Contingency Plan (NCP)-compliant remedy decision document;
- projects for which EPA (or another federal lead agency) has recently signed an early or interim-action Record of Decision (ROD) and that are entering or have recently entered the Remedial Design/Remedial Action (RD/RA) process; or
- “stuck” in the operation and maintenance phase with no clear path forward

Proposed Number of Pilots: *4 to 6 project-level pilots.* EPA, as the lead agency, is committed to piloting at least three EPA-lead projects. A PRP or FF-lead site, assuming all pilot criteria identified in Section IV have been met, may also be included.

Developing and executing AM-PMPs will:

- Explore the benefits of early, systematic project planning and documentation;
- Ensure clear expectations for project outcomes and AMDPs, including necessary monitoring, evaluation, and analysis activities;
- Document how proposed actions are evaluated and decisions are made;
- Determine how the enforcement process documents can effectively incorporate AM;
- Identify how AM-PMPs may require updates or modifications during implementation;
- Identify challenges with AM implementation including those specific to EPA-lead, PRP-lead, or other federal Agency-lead sites; and
- Use project examples to better inform the development of site-level plans and enforcement strategies

Measurements of Pilot Success:

- Establishing a AM-PMP that included coordination with numerous stakeholders and incorporation of their input to the Plan; and
- Use of structured decision-making focused efforts on actions to reduce uncertainty, promoting site progress, and reducing process (*i.e.*, transactions, meetings, review time); and
- Documented decisions and achievements in a Project Execution Plan for FY 2019

### **IV. Pilot Criteria**

1. All pilots should be conducted at sites on the NPL or at sites with Superfund Alternative Approach (SAA) agreements.
2. EPA will consider pilots at EPA-lead, State-lead, Tribe-lead, PRP-lead, and FF-lead sites or projects. Specific to PRP-lead sites or projects, to maximize success potential within the one-year pilot duration, only single PRP-lead sites or multi-PRP sites for which an allocation of responsibility has been completed and accepted among the PRP group may be considered<sup>1</sup>.
3. Site level pilots should be selected from sites recently listed on the NPL or having an SAA agreement (in the last 3-5 years) to maximize the benefits and applications of AM planning.
4. There must be documented pilot **agreement** from EPA, States, Tribes, PRP, other Federal Agencies and other stakeholders, as appropriate. Stakeholders must be familiar with EPA's definition of AM and purposes of the pilot.

## V. Draft Tools to Pilot

Draft AM Site Management Plan or AM Project Management Plan. These plans should contain at a minimum:

- Site/project objectives and stakeholders' priorities;
- Preliminary site-level or project-level strategy and schedule, including anticipated AMDPs;
- Enforcement strategy for RI/FS, RD, and/or RA activities including early and interim actions (if applicable);
- Requirements for developing actions including:
  - Measurable objectives; and
  - Monitoring and evaluation of selected actions
- Structured and iterative decision-making process for prioritization of actions (*e.g.*, early and interim actions) based on management objectives; and
- Process for incorporating lessons learned (*e.g.*, results of performance monitoring) into future AMDPs

Project Execution Plan for Fiscal Year 2019.

Documentation to memorialize management and resource decisions should contain, at a minimum:

- Proposed actions and objectives;
- Prioritization of proposed actions based on management objectives;
- Selected actions, rationale and expected outcomes/goals;
- Execution, monitoring, and analysis plan and schedule for selected actions; and
- Schedule and process for analyzing results and informing next FY Project Execution Plan.

## VI. Metrics for Evaluating Pilot Performance

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<sup>1</sup> See discussion in Section VII on how AM may be applied or considered at sites that do not meet this criterion.

Pilot success is articulated in Section II and III. AM planning and execution is challenging and complicated and incremental progress may be difficult to quantify. Pilot performance will be evaluated by the Adaptive Management Task Force Workgroup and participating pilot stakeholders using quarterly information requests. Requests will strive to capture the following information:

#### Site or Project Level Pilots – Planning

- Does the AM planning process seek to capture and consider stakeholders priorities, values, and objectives? Does it reflect stakeholder input?
- Does the site or project strategy effectively consider stakeholder input?
- Have steps been taken to identify and propose solutions for identified AM impediments?
- Are roles, responsibilities, timing and methods for decision-making clearly articulated in the AM plan?
- Has the AM planning process made you more or less inclined to use this approach at other large and/or complex sites?
- Do you think the AM planning process activities support streamlined decision-making for the site or project?
- How can this process be improved?

#### Site Level Pilots

- Does the high-level site strategy (AM-SMP) describe clear technical expectations and methods for documenting early and interim actions to support risk reduction, source control, and/or site development?
- Does the AM-SMP explain how information is presented during AMDPs (i.e. potential actions, anticipated outcomes, and monitoring needs) and how decisions are documented?
- If applicable, does AM complicate enforcement and/or enhance opportunities for enforcement?

#### Project Level Pilots – Execution

- Did the AM-PMP streamline management and resource decisions? If so, how?
- Were AMDP potential actions presented consistent with the AM plan? If not, why?
- How has an increased focus on risk management supported decision-making?

#### Tools/Templates

- Does the AM site or project plan template include all necessary elements of AM?
- Does the AM execution, monitoring and analysis plan clearly document management decisions?
- Does the AM execution, monitoring and analysis plan include objectives and monitoring needs for selected action(s)?
- Does the AM Execution Plan adequately capture the process for incorporating lessons learned into future AMDP?
- How can the tools be improved?

### **VII. AM Applications and Considerations at Sites or Projects that Do Not Meet the PRP Pilot Criteria**

EPA acknowledges that the criteria for selecting PRP-lead candidate sites in Section IV may exclude stakeholders interested in the opportunity to explore the use of AM at a project or site.

Specifically, EPA acknowledges that considerable work needs to be done in the area of PRP enforcement and negotiations to better guide Regions and responsible parties on how to incorporate AM approaches into agreements for work at large and/or complex sites. In addition to these challenges, the use of interim and early response actions, a common theme in AM site approaches, poses unique site-specific enforcement challenges for sites with multiple PRPs or PRP groups. Considering these challenges, EPA limited AM task force pilots to sites or projects with single PRPs or to multi-PRP sites where an allocation of responsibility has been completed and accepted among the PRP group. Although enforcement and negotiations are still complicated for these projects, EPA has concluded that more meaningful progress during the 1-year pilot duration can be expected at sites with a single PRP and that lessons learned from such pilots will support EPA efforts to develop future guidance for using AM at enforcement lead sites.

While EPA has focused the pilot study on single PRP sites or multi-PRP sites with an accepted allocation, EPA, in consultation with state, tribal and other federal counterparts, will evaluate pilot requests for sites that do not meet the formal criteria and determine if an informal pilot is timely or appropriate.

#### Tracking and Evaluation:

The AM task force workgroup will work with the Regions and Headquarters to:

- Maintain a list of non-pilot sites and projects with elements of AM;
- As requested, provide guidance and planning tools developed for the pilots to these projects;
- Check on the site/project status periodically, particularly to understand what is successful and what could be major pitfalls; and
- As appropriate, incorporate lessons learned in guidance and training.

#### **Pilot Nominations and EPA AM Contacts**

Pilot nominations are not being requested at this time. A formal call for pilot nominations will be sent out in October. All pilot nominations must be coordinated and presented through the EPA regional offices.

If there are any questions on the AM pilot criteria or the AM Task Force Implementation Plan, please contact the AM Task Force Workgroup Chair, Kate Garufi, at [garufi.katherine@epa.gov](mailto:garufi.katherine@epa.gov) or (703) 517-5857 or the OSRTI Director, Jim Woolford, at [woolford.james@epa.gov](mailto:woolford.james@epa.gov) or (703) 603-8722.